



STATE OF WISCONSIN  
Department of Agriculture, Trade and Consumer Protection

Approval # 20150024R1  
(Revision for 20150024)

Bureau of Weights and Measures  
Storage Tank Regulation  
P.O. Box 7837  
Madison, WI 53707-7837

## Wisconsin ATCP 93 Material Approval

Equipment: Vacutect Non-Volumetric Tank Tightness Test

Manufacturer: Tanknology-NDE  
8900 Shoal Creek Boulevard, Bldg 200  
Austin, Texas 78757

Expiration of Approval: December 31, 2018

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### **SCOPE OF EVALUATION**

The VacuTect precision test, manufactured by Tanknology –NDE , has been evaluated in accordance with **ATCP 93.130** and **ATCP 93.515(4)** of the current edition of the Wisconsin Administrative Flammable and Combustible Liquids Code.

### **DESCRIPTION AND USE**

The VacuTect Precision Test is non-volumetric and is not affected by temperature changes, tank dimensional changes, end deflection or trapped vapor pockets. An instrumented stainless steel probe is lowered through the fill pipe, which is sealed by an inflatable bladder. Signals from the probe are conveyed by a multi-conductor cable to the computer command console. A vacuum line is connected to the vent pipe. A UL approved vacuum pump controlled by the computer reduces the pressure in the tank sufficiently to cause air and/or water to leak into the tank through any existing leaks. Air drawn into the tank forms bubbles over each leak. As each

bubble reaches sufficient size to break loose and float to the surface, it undergoes a volume pulsation. The frequency of bubble vibration is inversely proportional to the hole size, indicating the leak size. The unique bubble sound or signature cannot be confused with other sounds. Many tanks are sitting in water, if water is drawn into the tank, it is detected and measured by a water sensor extending the bottom five inches of the probe.

Leaks in the tank top or ullage area are detected and confirmed as follows: Air ingress is detected by the probe Hydrophone and the air-hiss is recorded. Any ullage leaks are verified by evaluating the vacuum pump cycles with air leaking into the ullage. The vacuum pump must cycle ON to maintain the computer controlled vacuum level. A tight system will be indicated by the decreasing vacuum pump cycles.

There is no minimum waiting time after adding product to the tank to be tested. The typical test time is 2.5 hours. The necessary test time will increase if water is found in the tank. The VacuTect system will detect a minimum water level of 0.017 inches, and a minimum change in water level of 0.001 inches.

Underground storage tank systems tested with the VacuTect method are determined to be leaking if air bubbles are detected during the test, or if an increase of water is detected during the test.

The VacuTect precision test is performed by persons trained and certified by Tanknology -NDE.

## **TESTS AND RESULTS**

The performance of VacuTect precision test as a tank tightness testing method was verified by Midwest Research Institute and Ken Wilcox Associates in accordance with the EPA Protocol for non-volumetric tank tightness testing systems. The VacuTect system was found to detect a leak of 0.1 gph with 100 percent probability of detection and 0.0 percent probability of false alarm.

## **LIMITATIONS / CONDITIONS OF APPROVAL**

- All monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer instructions, and certified every 12 months for operability, proper operating condition, and proper calibration. Records of sampling, testing, or monitoring shall be maintained in accordance with **ATCP 93.500(9)**.
- The manufacturer shall submit for a revision to this Wisconsin Material Approval application if any of the functional performance capabilities of this equipment are revised. This would include, but not be limited to changes in software, hardware, or methodology.
- All equipment shall be installed, operated and maintained in accordance with procedures specified by Tanknology-NDE.

- Critical performance parameters for the annual 0.1 gph tightness testing:

Parameter	Value
Maximum Tank Size	<b>Up to 75,000 gallons</b>
Minimum Product Level	<b>Test may be performed at any product level, including empty, if total ullage volume does not exceed 20,000 gallons. Maximum of 30,000 gallons per tank and 60,000 gallons cumulative capacity for manifolded tank systems with microphone (hydrophone) and water sensor in each tank.</b>
Minimum Test Period <sup>1</sup> .	<b>Varies depending on test conditions. A leak is declared based on operator detection of air or water ingress.</b>

1: There must be no delivery or dispensing during testing.

This approval will be valid through December 31, 2018, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

### **DISCLAIMER**

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: December 16, 2015

Reviewed by: Signature on File Date: 7/31/2017  
 Erik Otterson  
 Environmental Engineering Specialist  
 Storage Tank Regulations, Bureau of Weights and Measures

Approved by: Signature on File Date: 7/31/2017  
 Greg Bareta, P.E.  
 Section Chief  
 Storage Tank Regulations, Bureau of Weights and Measures